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$(2x+1)$; then must $x^2-(2x+1)$, x^2 , and $x^2+(2x+1)$ be squares. Now, all we have to do is to find a value of x that will render $x^2-(2x+1)$ a square.

Put $x^2-(2x+1)=(x-p)^2$; then

$$x=\frac{1}{2}(p^2+1)\div(p-1).$$

Put $p=2$, then numbers are:—46, +50, +146;

" $p=8$,	"	"	"	: 386,	8450,	16514;
" $p=9$,	"	"	"	: 482,	3362,	6242;
" $p=10$,	"	"	"	: 4562,	20402,	36242;
" $p=11$,	"	"	"	: 2162,	7442,	12722.
&c.		&c.			&c.	

PROBLEMS.

11. Proposed by ARTEMAS MARTIN, LL. D., U. S. Coast Survey Office, Washington, D. C.

Find three whole numbers such that the square of the sum of any two of them diminished by the square of the other number shall be a square.

12. Proposed by H. W. DRAUGHON, Clinton, Louisiana.

Find three numbers such that, the sum of their cubes may be a square, and the sum of their squares a cube.

Solutions to these problems should be received on or before July 1st.

AVERAGE AND PROBABILITY.

Conducted by B. F. FINKEL, Kidder, Mo. All contributions to this department should be sent to him.

SOLUTIONS TO PROBLEMS.

3. Proposed by MISS LECTA MILLER, B. L., Professor of Natural Science and Art, Kidder Institute, Kidder, Missouri.

A deer, wounded at the corner of a square park, is equally liable to run in a straight line in any direction, from the corner of the park, and, at the same time, is also liable to drop dead before running a distance equal to the diagonal of the park. What is the chance that the deer will drop dead in the park?

I. Solution by Professor G. B. M. ZERR, Principal of High School, Staunton, Virginia.

Let $ABCD$ be the square park, side unity; $AF=r$; $\angle EAB=\theta$.

Then $AC=\sqrt{2}$, $AE=\operatorname{cosec}\theta$

$$\therefore \text{chance} = p = \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \int_0^{\operatorname{cosec}\theta} r d\theta dr \quad / \quad \int_{\frac{\pi}{4}}^{\frac{5\pi}{4}} \int_0^{\sqrt{2}} r d\theta dr.$$

$$p = \frac{1}{\pi} \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \int_0^{\operatorname{cosec}\theta} r d\theta dr = \frac{1}{2\pi} \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \operatorname{cosec}^2 \theta d\theta = \frac{1}{2\pi}.$$

